

MARINE REVIEW.

VOL. IX.

CLEVELAND, O., AND CHICAGO, ILL., JAN. 4, 1894.

No. 1.

Capt. Stephen B. Grummond.

Probably no man on the entire chain of lakes was better known among vessel owners than Capt. Stephen B. Grummond, who died at his home in Detroit on Tuesday, the 2nd inst. He was fifty-nine years of age and had been connected with the vessel business from boyhood. Many owners and masters now re-



STEPHEN B. GRUMMOND.

tired were stirred with olden memories upon the announcement of his death. They had towed with him or had met him in business dealings away back in the fifties. He was successful in the management of tugs, and during a long period previous to the coming of big freight steamers was the largest owner of tugs on the lakes. He was also the owner of a large amount of wrecking apparatus and was a leader in wrecking business, as well as manager of more or less vessel property. Of late years he accumulated considerable real estate in Detroit. He served one term as mayor of Detroit and at the time of his death was president of the city police commission.

Stephen Benedict Grummond was born Sept. 18, 1834, near what is now Marine City. He purchased his first interest in a vessel in 1852. In 1855 he settled in Detroit, and was married

Dec. 18, 1861, to Louisa B. Prouty of that city. Eleven children were born to them, seven of whom, three daughters and four sons, are still living.

A Fast Steam Yacht.

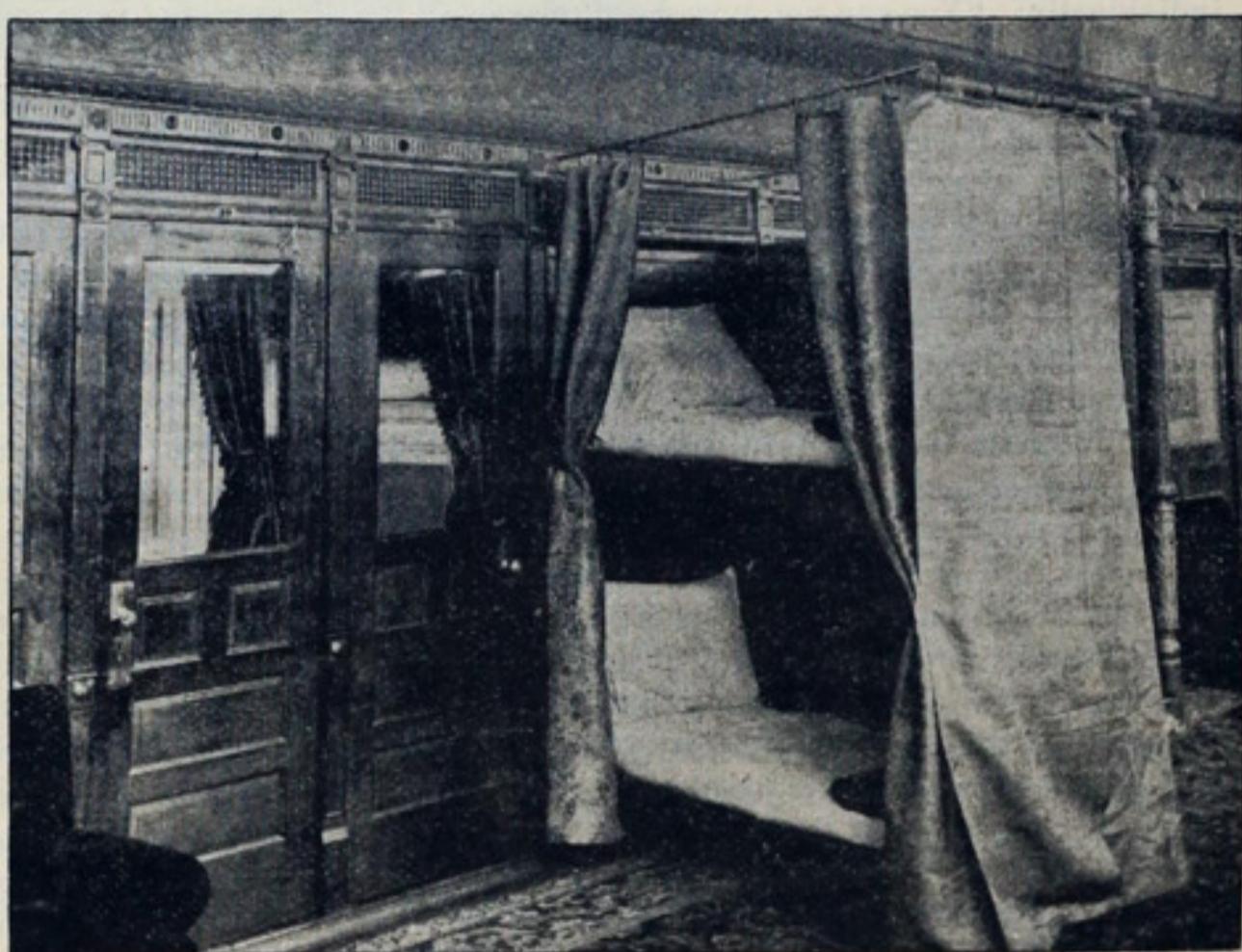
On her trial trip, the steam yacht Columbia, a light speed boat ordered by Harvey Ladew from William Cramp & Son, and recently completed, steamed 80.52 knots in 4 hours, 30 minutes and 43 seconds, which is an average of 17.85 knots an hour, or, to put it in statute miles, 92.60 miles, an average of 20.53 miles per hour. The Columbia is of steel, 185 feet over all, 180 feet on water line, 23 feet beam, 15 feet deep, 10 feet 9 inches draught aft and 9 feet 9 inches forward. She has triple expansion engines with four cylinders, 21 1/2 (high pressure), 31 (intermediate) and two of 34 inches (low pressure), with a stroke of 20 inches. Steam is supplied by two steel return tubular boilers. Throughout the trip the pressure of steam averaged 158 pounds. The average revolutions were 235 and the maximum 238 per minute.

To Support Shaft Bearings.

To support the outboard shaft bearings in the new American line ships being built by the Cramps, the hull is built out in a horizontal web to a steel frame having both bosses cast in one piece and weighing about 68,000 pounds. The after deadwood is cut away and the keel slopes up so that the shoe meets the boss frame at the after end.

System of Extra Berths.

One of the extra berths which are a feature of the Goodrich Transportation Company's twin-screw passenger steamer Virginia, is shown in the accompanying engraving. These berths, which almost double the capacity of the Virginia, are arranged in the main saloon after the vessel is under way on her night trips on Lake Michigan. When not in use everything connected with



STYLE OF EXTRA BERTH, STEAMER VIRGINIA.

them is stored in small space under the berths in the staterooms surrounding the cabin. The arrangement is somewhat similar to that of sleeping cars, and the whole length of the cabin on either side is fitted up in the manner indicated by the engraving without disturbing passengers in the regular staterooms. Patents covering this system of berths are held by Mr. G. Hurson of Milwaukee, general traffic manager of the Goodrich company.

Engineers.

[By an Engine Builder.]

I have on one or two occasions had something to say in the REVIEW about the relation of the engineer to the modern steamship, as judged from the standpoint of one intimately connected, not only with the building of steamships and their machinery, but with the operating of them as well. I will now say something about the composition of my idea of an engineer, and it is addressed to the engineers themselves in the hope that it may prove, if not actually useful, at least interesting, as showing how their profession is regarded by those who are in the best position to form an opinion.

It is, or should be, unnecessary for me to say that my engineer is of all things strictly temperate. It is not asked of him that he shall be a prohibitionist, but it is absolutely necessary that he should never allow himself to become under the influence of liquor. I am glad to say that I believe there are few instances of this among lake engineers while ships are out of port, but it must be reluctantly admitted that it is far too common ashore, and even amongst men who are really good, capable engineers otherwise. Were I chief engineer in a line of steamers I should reject the application of the best engineers of them all, if I knew of his being even ever so rarely under the influence of liquor. I could never feel that confidence in his having all his faculties clear that I should have, as no one can foresee the moment when circumstances may arise calling for his full command of every sense. On his judgment and quickness of decision may hang the fate of a whole ship's company.

In the next place my engineer is a man who not only respects himself but knows how to command respect from others. He is not afraid of meeting his employer in a situation that would be to his discredit, because he does not at any time allow himself to be found in such a position. He keeps himself at the head of his department in every sense. No engineer can look for the same service from his subordinates once he allows discipline to relax. It is not at all needful, or even desirable, that he should go to the other extreme and be a tyrant. He expects respect from his men, so he respects them, but at the same time he takes care that he keeps only men around him who are deserving in this regard.

He is preferably a man with some education—the more the better, so long as it is of the right kind. I am sorry to say that there is, among a certain class of so-called engineers, a disposition to ridicule those who have made the most of their opportunities by dubbing them "book engineers"; not meaning always that the men whom they so classify obtained their whole knowledge from books, but because they understand and are able to explain (more or less thoroughly) the theory and laws on which their whole business is based, which knowledge is, of course, best obtained from the experience and researches of others, condensed into book form. But watch the fellow who scorns the "book learning." He is fond of reciting that he started in the firehold and that he is "practical." Ten years hence he is on the same round of the ladder, or even a little lower down, while the "book engineer" has climbed way above him. Then the "practical" man grumbles about his luck. Let me say to engineers individually: "You can not, unassisted, master all the difficulties of your profession, nor arrive at a full knowledge of it as it stands today, without availing yourselves of the results of the labor of those who have gone before you, and he who makes the most of their work finds all the more inducement to explore further."

My engineer is also a man with some taste for reading. He takes a part of the money that others would use for "doubtful pleasures," and purchases a magazine or two—some of those devoted to engineering subjects, of which the number is increasing, or again some of those filled with choice miscellany. A few good mechanical papers or perhaps a good work on the subject he is, or should be, most interested in, might also be included among the purchases. From these he learns the latest and best practice, and applying it to his own case he sees where he can effect an improvement in the performance of the machinery or boilers of his steamer. Perhaps he has been bothered with the misconduct of some detail of his engine, and in his reading he finds something bearing on the subject which shows him that his own treatment of the case is at fault. He never says to himself "What is the use of my trying to do better? I will get no more for it. That Dick Dunderhead gets just as much as I do and he burns 50 per cent. more coal and spends twice as much in repairs as I do, in doing the same work." Not much. My engineer does not expect to stay in this berth all his life. The reason Dick Dunderhead is not "fired" is probably that his employers do not see their way yet to doing better. My friend finds his opportunity some day and his employers say enough in his favor to throw it his way. Now did it pay him to try and do a little better, or not?

I know a man, who, when an apprentice in an engine building shop gave his evenings to study in his own room. He was a stranger in the city, but he preferred his books to seeing the sights. He had to depend for his reading on the public library of the town, as he hardly earned enough to pay his board and could not buy books. He tried his hand at making rough working drawings, of the jobs he worked on by day in the shop. His first drawing instruments consisted of an old pair of carpenters' compasses, a two-foot rule and a lead pencil. He could have had assistance for the asking, but he was too proud to

ask it. After three long years of this he concluded to see some of the engines he had helped to build at actual work, so he tried a life on the "ocean wave" but still kept up his reading and drawing. He got to the top there, and at twenty-six was chief engineer of a line of large ocean steamships. But others had seen some of his work and his drawings and he was offered and accepted a good berth ashore. If you want to know any more about him ask the editor of the REVIEW. I have only spoken of this to show the value of good reading to engineers.

Of course I prefer my engineer to be a mechanic. I am well aware that there are plenty of capable engineers who are not mechanics, but I also know it to be a fact that the mechanic has fewer breakdowns and gets out of them more readily than the man who is not a mechanic. His repair bills are also fewer and smaller, and when he is obliged to call in the services of "the man from the shop" he is naturally better able to intelligently direct his operations. During his spring "fit-out" his shop experience enables him to save a good deal on his repair bills. But it is not to be denied that there are some engineers who are not mechanics who are to be preferred to some who are. It occasionally happens that the mechanic is taken up with the idea that his shop training covers the whole ground, (it is really only an advantageous beginning) and is disposed to disparage those who did not go through the same course. My engineer does not pass his time when on duty sitting in the arm-chair while his subordinate goes the rounds. He goes carefully over every detail of engines and boilers himself and notes their operation, remembering that "eternal vigilance is the price of safety," as well as liberty. He leaves nothing to supposition, but keeps himself in touch with everything in his department, and when anything does go wrong he has the satisfaction of knowing that it was not due to neglect. And right here is where the value of judgement in knowing when to let well enough alone comes in. There is a wide difference between real and imaginary defects, and it is well to "be sure you are right and then go ahead."

My engineer never brags of what he has done. He goes right along minding his own business and lets others mind theirs, the result being that he is well spoken of by all, while the "blow-hard" has no friends but himself. Neither is my friend a "kicker," although he gets just as many concessions as others. We fitted out two steamers together one summer. My engineer was on one, and the other was in charge of a man who was a chronic kicker. Nothing pleased him. He wanted this changed and that altered, and the other thing thrown out and something else substituted, and he was going to have it, too, or know the reason why. The result was he got nothing, while the other man, who, of course, had his little whims but went about it quietly and decently, got everything he asked for and more too. The "kicker" gained nothing except to get the builders "down on him," and that is a bad thing to happen an engineer. The two engines were built together and were exactly alike, but the "kicker's" engine never was right. There was always something that the shop had left undone until he was replaced and then the trouble vanished. The other man took his boat out, and if he found anything wrong he sensibly went to work and made it right, instead of grumbling, and now if there is anything the builders can do for him all that is necessary is to ask for it.

New Officers in the Shipmasters' Association.

Buffalo lodge: President, E. F. Thorpe; first vice-president, J. Coleman; second vice-president, F. McCabe; secretary, H. H. Fergusson; treasurer, J. Perew; trustee for three years, J. McCarty.

Chicago lodge: President, Geo. Tebo; first vice-president, George Pardee; second vice-president, H. J. Hatch; treasurer, William Turner; secretary, F. B. Higbie; delegate to the grand lodge, Geo. Tebo; chaplain, Alpha Simons; marshall, Geo. McDonald; warden, Anthony Everett; sentinel, Wm. Armstrong.

Milwaukee lodge: President, John Cochrane; first vice-president, W. J. Carter; second vice-president, John Wright; recording and financial secretary, John McSweeney; treasurer, Fred Starke; trustee for three years, Albert Gibbs; delegate to the grand lodge, John Cochrane. Appointive offices remain to be filled.

Cleveland lodge: President, Capt. C. E. Benham; first vice-president, Capt. Richard Neville; second vice-president, Capt. Carlton Graves; treasurer, Capt. Thomas Jones; financial secretary, Capt. Frank Brown; recording secretary, Capt. William C. Goodsell; sentinel, A. Olsen; delegate to the grand lodge, Capt. C. E. Benham; alternate, Capt. John. Lowe.

Proceedings of the Chicago Congress.

The official report of the proceedings of the division of the Engineering Congress devoted to marine and naval engineering and naval architecture is now ready for distribution, and subscribers who placed their orders through the MARINE REVIEW will receive the books in a few days. Although this work has been sold only on subscription, it is probable that the REVIEW will be able to fill a few more orders if they are received promptly. These proceedings, prepared under the direction of Chief Engineer Melville of the navy and his able secretary, Past Assistant Engineer McFarland, give full detail of the greatest gathering of naval architects and marine engineers ever held in this or any other country.

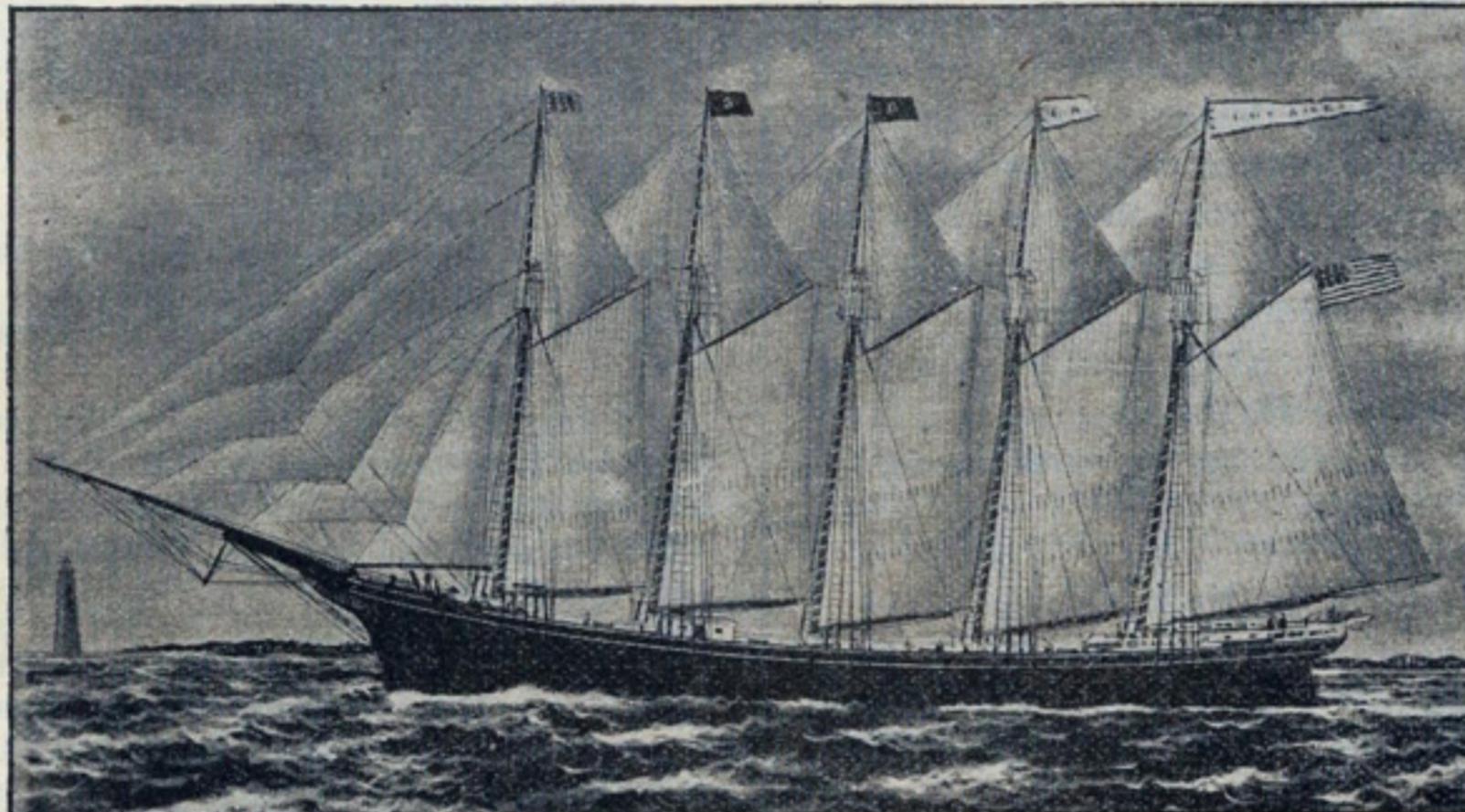
American Schooner Governor Ames.

The American schooner Governor Ames, a picture of which appears on this page, has capacity for 2,000,000 feet of lumber, and is now on the passage from Seattle, Wash., to Queenstown with a \$26,000 freight. The tonnage of the Ames, customs department measurement, is 1,778.77 gross tons and 1,689.84 net. She is 245.6 feet long, 49.6 feet wide and 21.2 feet deep. She was built in 1888 at Waldeboro, Me., and hails from Fall River, Mass. The photograph from which the engraving was made was received in Cleveland a few days ago by Capt. J. H. Palmer from his son, J. F. Palmer, who met the master of the Ames, Capt. C. A. Davis, in San Francisco.

Appeals to the Philanthropist.

William H. Webb, who recently founded and endowed the Webb Academy and Home for Ship Builders at Fordham Heights, New York, which was described in the last issue of the REVIEW, is receiving many appeals for help from all parts of the country as a result of the special charity which he has undertaken.

In a letter to the REVIEW he says: "I have been overwhelmed with letters and personal application for aid in every way, growing out of the publication in the papers of my doings at Fordham Heights, this city,—my philanthropy, my wealth,



AMERICAN SCHOONER GOVERNOR AMES.

etc., most woefully exaggerated—the result of all which is I have been made really ill reading the letters setting forth so much distress and listening to personal appeals for aid. Excessive pressure of business in getting Webb's Academy and Home for Ship Builders ready for occupancy has been too much for me. There is some let up, but still they come."

Little Significance in the Canal-Trolley Experiment.

Of course the boat owners and shippers who are actively engaged in business on the Erie canal are not responsible for the newspaper statements proclaiming a revolution in canal methods, on account of the recent trial of the trolley electrical system of propulsion. Only a radical enlargement of the canal will make any material difference in its commerce. Referring to the electrical experiment, State Engineer Schenk says:

"Successful? Why, of course it was successful. I never heard of anybody doubting that by attaching a current of electricity to the machinery that turns the wheel of a steam canal boat you could not make the wheel turn and the boat go. Nothing was demonstrated except the fact that the electric power would turn the propeller of a canal boat just as it would the wheel of a car. The truth of the matter is that the trolley system of supplying power to canal boats can never be of any great value to canal traffic with boats in this state as they exist today. The

electric trolley canal boat, with its three or four consorts, is as helpless when it reaches the river as the horse boat. The steam canal boat, however, when it reaches the river does not have to wait till a tow is made up and then pay \$25 a boat to be moved to New York, but can get right out into the river and perhaps pick up an extra horse boat or so, which got in just too late to get a place in the regular tow. Moreover the steam canal boat is running today up to the limit of speed allowance on the canals. They run five or six miles an hour, while the electric boat could not run six or eight miles an hour without washing the canal banks. I have seen a steam launch run in the canal so that you could see the bottom of the canal in her wake. I can not see where the trolley system is going to work any benefit to the boats that leave the canal and travel down the river as most of them do."

Combination Scotch and Water Tube Boiler.

Capt. Conrad Starke of Milwaukee, who was unsuccessful with a water tube boiler of peculiar design, put into the steamer E. A. Shores, Jr., some time ago, proposes to provide the Scotch boiler, which he is now having built for the Shores, with a water tube annex. The shell diameter of the boiler will be 9½ feet and its length 12 feet. The length of the boiler as compared to

the diameter does not correspond with the scotch type now in general use, but it is right here that Capt. Starke will obtain the necessary room for his water tubes. These will be placed in the smoke box in perpendicular position. There are to be seventy-two of the tubes in all—six rows, with twelve in each row. The fire will first pass between these tubes and then through the tubes of the main boiler. The arrangement of the tubes is such that it will be an easy matter to remove and replace any one of them. Water is to be fed into the shell from above instead of below as in ordinary boilers, and through a coil. This idea originated with the proprietor of the Manitowoc Boiler Works, and has created such a favorable impression that it is to be adopted in the new boiler for the tug Welcome and also introduced in the boilers of the Carl and other tugs of the Milwaukee Tug Boat Line fleet.—Milwaukee Evening Wisconsin.

Richard P. Joy of Detroit has issued another pamphlet along the line of his voluntary labors in support of protection to American shipping. This latest work is entitled "How Foreign Nations Protect their Merchant Marine."

FIFTEEN PHOTOTYPES OF THE LATEST LAKE STEAMERS AND A PICTURE OF THE GREAT EASTERN, NEATLY BOUND, FOR 50 CENTS. WRITE THE MARINE REVIEW, NO. 516 PERRY-PAYNE BUILDING, CLEVELAND, O.

To Regulate Freight Rates.

Within the past few days several leading vessel owners from Buffalo, Detroit and Chicago have visited Cleveland, and the main topic of discussion has been with reference to the advisability of the Lake Carriers' Association undertaking to add to its present duties the work of regulating freight rates on such leading commodities as ore, coal and grain. There are leading owners around the lakes who openly profess a willingness to enter into an agreement giving full control of their boats to a committee of the association. These owners look upon this plan as a feasible one, and they also say that it is more certain of good results than the scheme of minimum rates, which some of them are unwilling to encourage, on account of the danger of rebates and other disadvantages. With the dull outlook in the iron market, there is nothing but loss to be expected next season under present conditions, and it would seem that ore rates even in event of a combination of the kind proposed could not be held above a basis of perhaps anywhere from 90 cents to \$1.10 from the head of Lake Superior, with corresponding rates from Marquette and Escanaba, which would be fair to all interests. The greatest advantage in the proposed movement would be to get something like fair rates for carrying coal both to Lake Superior and Lake Michigan. These rates have been extremely low, and coal has been carried more as ballast than for the money it paid. From 65 to 75 cents a ton on coal should be paid to all points west of the Straits of Mackinaw or Sault Ste. Marie. If a committee of the Lake Carriers' Association had control of all boats they could lay up such as were not needed in the trade during the dull periods, and start them in operation as soon as it was thought desirable. Of course, nothing of the kind could be successful unless absolute good faith was maintained between the different owners, which perhaps could be brought about through a good large working committee. The committee should be made up of owners having large interests, so as to insure active work from them.

Average Freight Rates on Hard Coal.

Brown & Co. of Buffalo figure the average daily rate on hard coal during 1893 to Chicago and Milwaukee at 49½ cents, while the average to Duluth was 29 cents. Following are the average rates for nine years past:

AVERAGE FREIGHT RATES, WILD, HARD COAL, BUFFALO TO PORTS NAMED.

Year	Chicago.	Duluth.	Milwaukee.
1885.....	\$0 71	\$0 52	.....
1886.....	87	62	.....
1887.....	1 05	70	.....
1888.....	86	65	.....
1889.....	52	41	.....
1890.....	62	43	.....
1891.....	56	29	.....
1892.....	59	43	\$0 67
1893.....	49½	29	49½

Average nine years 70 49

[Coal shipped net tons; handled without charge to vessel.]

Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store at the principal points of accumulation on the lakes on Dec. 30, 1893:

	Wheat, bu.	Corn, bu.
Chicago	19,950,000	2,658,000
Duluth.....	9,177,000	.....
Milwaukee.....	883,000	.....
Detroit.....	1,635,000	19,000
Toledo.....	2,668,000	519,000
Buffalo	2,787,000	713,000

Total 37,100,000 3,909,000

At the points named there is a net increase for the week of 271,000 bushels of wheat and 351,000 bushels of corn.

Two Almy water tube boilers will furnish steam for the new fire boat being built by Thomas Manning, Jr., & Co. of Cleveland.

Iron Ore Shipments.—Mining Notes.

Although the REVIEW will print later a statement showing in detail the shipments of all mines in the Lake Superior region, lake and rail, for the full calendar year 1893, it may be interesting to note here the following totals reported from Ishpeming mines: Ames 1,103 gross tons, Cleveland 218,130, East New York 911, Iron Cliffs 130,851, Lake Angeline 351,989, Lake Superior 329,624, New York 25,000, Winthrop 180,238. The aggregate from these eight properties in 1893 is 1,237,846 gross tons, which is 269,147 tons less than was shipped from the same mines in 1892. Vermillion and Missabe range shipments, rail and lake, for the full year were:

DULUTH AND IRON RANGE RAILWAY SHIPMENTS.

	Lake.	Rail.
Vermillion range.		
Minnesota.....	367,360	429
Chandler.....	435,281	.....
Zenith.....	12,969	1,419
Total.....	815,610	1,848 817,458
Missabe range.		
Cincinnati.....	10,059	16,376
Hale	3,511	47
Canton.....	24,367	14
Franklin.....	46,617	.....
Total.....	84,556	*16,437 100,993

D. M. & N. AND DULUTH & WINNIPEG SHIPMENTS.

Biwabik	151,200
Missabe Mountain.....	128,295
Mountain Iron.....	122,252
Commodore	66,597
Duluth mine.....	37,852
Minnewas	13,858
	521,054
Total.....	1,439,505

*Used at West Superior.

Of 521,054 gross tons of Missabe ore shipped by lake via Duluth and Superior, 80,762 tons was handled by the Duluth & Winnipeg and 440,292 tons by the Duluth, Missabe & Northern.

Fitzgerald Bros.' big stripping contract on the Biwabik, Missabe range, will not be started till spring, because of frost, but five large steam shovels and six dummy locomotives are at work day and night at the Mountain Iron. It is hoped to strip about 500,000 yards of surface at this property before spring, there being an average of 20 feet of earth over the ore. Contractors and engineers are examining the Minnesota Iron Company's new Missabe purchase, the Iron King, where over 300,000 yards of stripping are to be moved. The Norman, another Minnesota Iron Company purchase, is also to be stripped in a moderate way. The Minnesota has added another to its list of Missabe properties by securing 240 acres near the McKinley on payment of \$50,000 and agreeing to 30 cents per ton lease. The Minnesota company is now second only to the syndicate.

At execution sale last week, representatives of the Chicago & Northwestern Railway, which holds a freight claim of about \$10,000 against the Dunn mines, bid in the leasehold at \$28. There is also due about \$22,000 for royalties.

Missabe royalties, if averaged over the entire shipments from the range for the year, fee and lease, would be about 33 cents a ton.

The annual meeting of the Penn Iron Mining Company will be held in Philadelphia on the 17th inst.

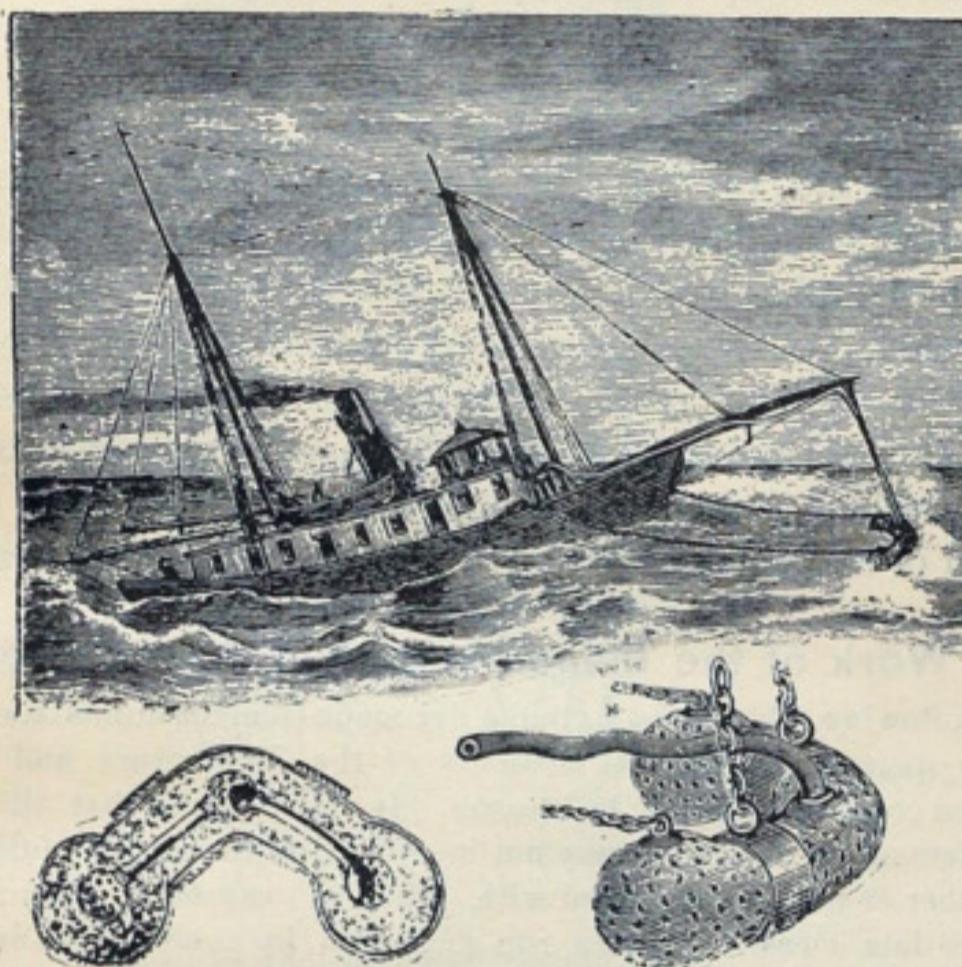
In General.

Each successive number of The Book of the Fair, by Herbert Howe Bancroft, lets us more and more into the plan of the work, which is such, while avoiding too lengthy description, as to cover the entire ground with sufficient detail, and present in permanent form all the characters of the great exposition.

Officers of the Detroit lodge, Shipmasters' Association, elected at a recent meeting are: President, C. L. Wilson; first vice-president, Alex. McKay; second vice-president, Louis M. Stoddard; financial secretary, Geo. N. Wilson; treasurer, Thos. Hackett; corresponding secretary, James Kennedy; warden, Geo. E. Merritt; chaplain, James Parsons; warden, S. J. Millen; senior warden, R. H. Sunderland; delegate to the grand lodge, Geo. McCullagh.

New Method of Distributing Oil on Water.

Mr. P. Samohod of Lima, Peru, sends us a sketch of a simple apparatus which he has devised for the distribution of oil from vessels on the surrounding sea surface in stormy weather, and suggests that possibly our government would be willing to give it a trial. The apparatus, as shown in the illustration, comprises a somewhat bow-shaped distributor, near the ends and center of which are globe-shaped, perforated copper oil receivers



connected with each other by metal tubing, and surrounded by sponge, the whole inclosed by a varnished leather cover with many perforations protected by metallic eyelets. The small figures represent the distributor in section and perspective. It has two metal bands, from which chains pass to the deck of the vessel, other chains being connected to facilitate its suspension from the bowsprit. An oil supply hose of good varnished leather or other preferred material extends from a pipe in communication with a pump and reservoir on the vessel to the central one of the three oil receivers, by means of which the oil may be forced into and through the distributor as desired. It is also provided that the oil will pass through a section of coil in a simple form of heater where a lamp may be placed when the weather is cold. It is designed that the length of the distributor shall be equal to about one-third of the maximum width of the vessel.—*Scientific American*.

Around the Lakes.

Capt. Green of Buffalo will change the name of the steamer S. E. Peck to the Lewiston.

Capt. W. P. Henry is again in Buffalo and will resume management of the Lehigh Valley steamers.

A cut of 10 per cent. in wages went into effect at the works of the Globe company, Cleveland, on the 2nd inst.

Capt. "Lew" Vance, who commanded lake vessels a few years ago, is now connected with the Mare Island navy yard, San Francisco.

The Hunter Savidge is being rebuilt at Port Huron by Botsford. Dunford & Alverson of the same place are repairing the tug Merrick and crowning her for ice work.

Division No. 37, M. E. B. A., Toledo, will hold its annual social gathering this year on Jan. 30 at Pythian Castle. We acknowledge receipt of an invitation to attend.

David Vance & Co. of Milwaukee have sent out a card showing that twenty-one steamers and six sail vessels tied up in Milwaukee have a combined capacity for 1,810,000 bushels of grain.

Harvey H. Brown is the name selected for the Peck boat, building at the Wyandotte yard of the Detroit Dry Dock Company. Capt. Peck and Mr. Brown are near friends, as well as business associates.

There is being built at Racine, Wis., a wooden steam ves-

sel, 60 x 14 x 5½ feet, for service in Honduras. Arthur Pugh of Racine and Capt. Davis of San Francisco, Cal., are the designers and builders.

One of the officers of the Columbian Whaleback Steamship Company is responsible for the statement that next season the world's fair whaleback steamer Christopher Columbus will again run between Chicago and Milwaukee.

Mohegan is the name selected for the new lumber steamer which Curtis & Brainard of Toledo are completing at Marine City. Her tonnage, per customs department measurement, is 1,216.51 gross and 1,014.14 net, and her official number 92,561.

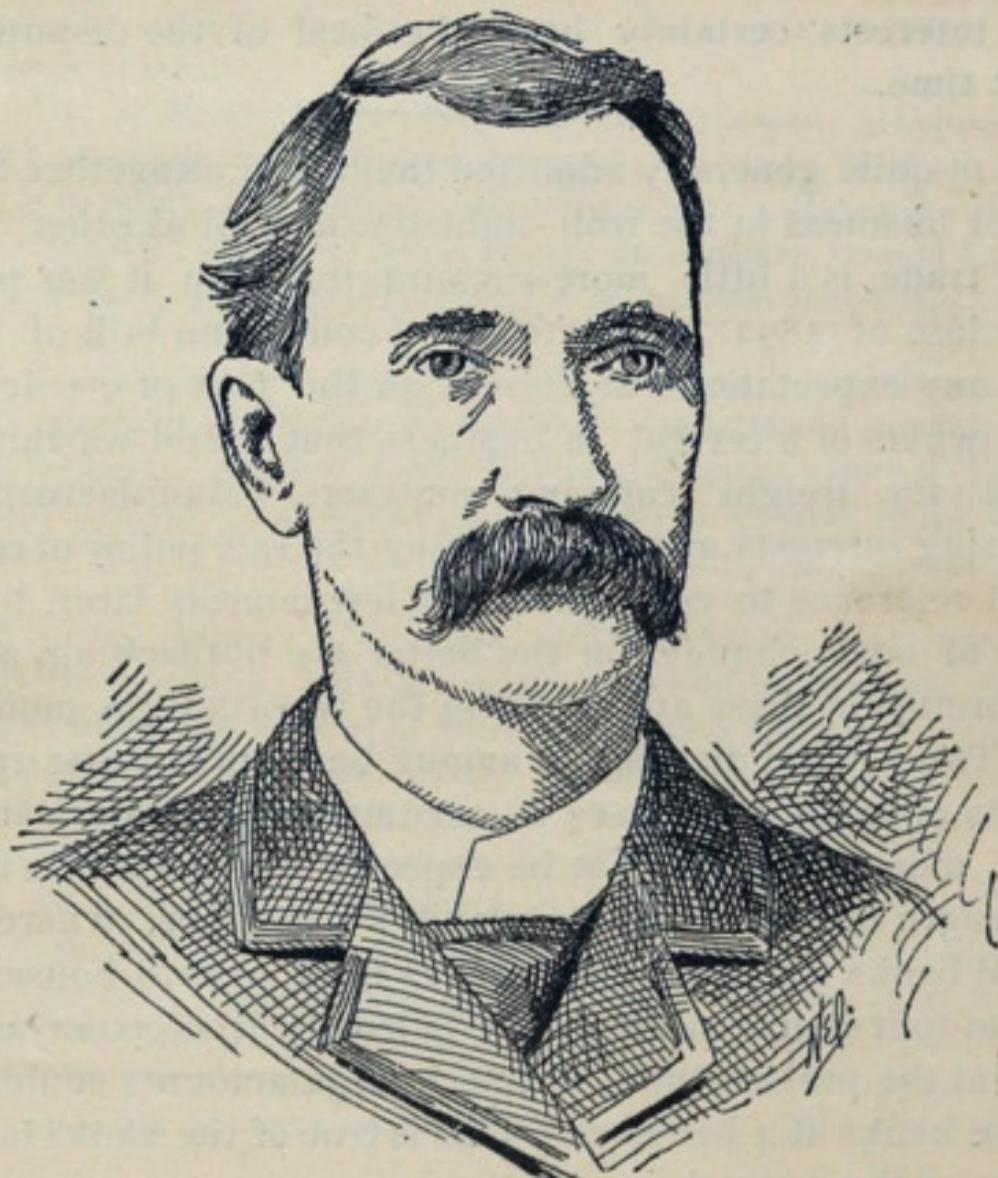
The Perrysburg and Toledo Transportation Company of Perrysburg is a new corporation organized to take up the business of the old company that has been doing a passenger and freight business between Toledo and Perrysburg. A small side-wheel steamer will probably be purchased by the new company.

The steel hull of the steamer Mascotte, which was burned at New Baltimore, Mich., Dec. 6, was so badly warped and cracked by the heat as to be hardly worth repairing. There is said to be no boat on the lakes for sale so well adapted for the requirements of the Lake St. Clair route as was the Mascotte, and it is possible that her owners will from necessity be obliged to rebuild her.

A very neat invitation to the launch of the twin-screw passenger steamer North West, which takes place at the ship yard of the Globe Iron Works company on Saturday, the 6th inst., at 2:30 p. m., standard time, has been issued jointly by the Northern Steamship Company and the Globe company. The invitation announces that the boat will be christened by Mrs. F. P. Gordon, representing the steamship company, and launched by Miss Gertrude Hanna, representing the builders.

A. Warner White of the Michigan Fire and Marine Insurance Company, Detroit, estimates the losses on the lakes during the season of 1893 at \$1,800,000, with the premiums at least \$400,000 less. James J. Clark of the Detroit Fire and Marine company adds that the disasters of 1893 were heavy, particularly during the months of April and October. There were not as many losses during the month of April before in the last twenty years. Besides this, there was an excessive amount of competition, and risks were taken below healthy rates, with a system of rebates that was ruinous.

Capt. Robert E. Gaines.



Capt. Robert E. Gaines, who died suddenly at his home in Port Huron Christmas morning, was of a family of lake-faring men who are very well known to readers of the REVIEW. Capt. Gaines had been on the lakes a number of years. In 1890 he bought out the steamer W. H. Sawyer, in which he had an interest, and had commanded her ever since. His age was 50 years. He was a prominent member of the Shipmasters' Association, and that organization suffers a great loss in his death.

MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

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ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC.

	St. Mary's Falls Canal.			Suez Canal.		
	1892.	1891.	1890.	1892.	1891.	1890.
No. vessel passages	12,580	10,191	10,557	3,559	4,207	3,389
Ton'ge, net regist'd	10,647,203	8,400,685	8,454,435	7,712,028	8,698,777	6,890,014
Days of navigation..	223	225	228	365	365	365

Entered at Cleveland Post Office as Second-class Mail Matter.

THE Northwestern Lumberman, a Chicago journal that represents in an important way the rafting and lumber interests of the lakes, seems to regard the recent report on raft towing from the commission of army engineers as very hostile to the raft towing business. In support of the raft towing interests, the Lumberman says that Alger, Smith & Co. of Detroit have rafted down Lakes Huron and Erie an average of 90,000,000 feet of logs annually the last ten years, and they are preparing to raft large quantities from Grand Marais, on Lake Superior, as well as from Lake Huron points. Last season 200,000,000 feet were rafted across Lake Huron from Canada, and a number of million feet were rafted from Green bay and Lake Superior to the Saginaw river, and the H. M. Loud & Sons Lumber Company sent 20,000,000 feet down the lakes from Oscoda to Lake Erie. The importance of the rafting business is not underestimated by lake vessel owners. It is absolutely certain, however, that the business must be regulated, and the sooner the lumbermen get together and seek a settlement of the question in a bill that will satisfy the vessel owners, the better it will be for all concerned. Backed up by a favorable report from the army engineers, the vessel interests certainly have the best of the dispute at the present time.

IT IS quite generally admitted that taken altogether the outlook for business in the iron industry, as well as other leading lines of trade, is a little more encouraging than it was previous to the close of 1893, but there is, of course, no talk of sales of ore, or any expectations at present on the part of ore dealers or vessel owners of a revival in business that would warrant negotiations for freight carrying contracts. Manufacturing and purchasing interests are still pursuing the safe policy of economy without reference to consequences a few months later, but indications of some change for the better are not lacking, and the most forcible of these are found in the reports from money centers. The general disposition among bankers to insist upon settlements of loans has caused an accumulation of abundant supplies of money that can not be expected to remain idle for any great length of time. In Cleveland, for instance, where eleven national banks are usually borrowers from eastern houses to the extent of four or five million there is hardly \$100,000 of borrowed money at the present time, although large amounts could be had by these banks at 4 per cent. This is true of the banks in nearly all parts of the country.

ALTHOUGH the members of the Lake Carriers' Association, and in fact the entire shipping interests of the lakes, will give earnest support to the plans for dredging, to a depth of 20 feet, the entire basin forming the harbors of Duluth and Superior, it is not probable that the legislative work connected with the project can be undertaken by the Lake Carriers' Association. It

will be necessary to go before congress and urge the appointment of a commission of engineers to report on this work, and the vessel owners, as individuals, may be expected to join in securing the appointment of this commission, but the Lake Carriers' Association has repeatedly refused to recommend any local river and harbor measures, on the ground that there are so many of them that jealousies and claims of discrimination would be certain to arise. Nevertheless, the Duluth-Superior project is one of the most important improvements, and the commercial interests of the two cities will be assisted in the best way possible by vessel owners in other parts of the lakes.

ANOTHER bill, this time by Representative Chickering, has been introduced in congress for an appropriation to ascertain the feasibility and probable cost of constructing a ship canal through United States territory from the great lakes to the navigable waters of the Hudson river. The canal is simply a question of time. It can no more be prevented than the growth of lake commerce itself. It is not probable, however, that even an appropriation of \$100,000 for a survey can be secured at present.

Season's Work of the Menominee and Mutual Steamers.

In the following tables some extracts are made from the annual statements covering the operation of the steel steamers of the Menominee and Mutual transportation companies during last season. It will be seen that all the vessels of the Menominee company were not in operation during the full season, and the number of trips as compared with previous seasons is materially cut down, but the data is based on miles run and time in commission, and is on that account as valuable as if the number of trips were greater. These steamers, excepting the Cambria, are practically of the same dimensions. The Menominee boats are 316 feet over all, 296 feet keel, 40 feet beam and 24 feet moulded depth, while the Corsica and Corona are 4 feet shorter. The Cambria, the third boat of the Mutual fleet, is 280 feet keel, 300 feet over all, 38 feet beam and 24 feet moulded depth. The engines in all cases have cylinders 24, 38 and 61 inches by 42 inches stroke of about 1,200 I. H. P. The boilers, the dimensions of which in the case of all excepting the Cambria are 12 $\frac{1}{2}$ by 14 feet, supply steam at 160 pounds pressure. The Mutual boats have connected air pumps, while the pumps of the Menominee boats are independent.

PERFORMANCE OF MENOMINEE TRANSIT COMPANY'S STEAMERS,
OF CLEVELAND, SEASON OF 1893.

	Norman.	Saxon.	German.	Briton.	Grecian.	Roman.
Number of trips.....	23	20	18	22	25	23
Hours run.....	2,289	2,018	1,814	2,278	2,407	2,286
Miles run.....	27,750	24,000	22,112	27,570	30,000	27,700
Miles per hour.....	12.12	11.89	12.11	12.10	12.46	12.11
Ore carried, gr. tons...	63,926	55,673	49,719	60,610	69,220	65,130
Av. tons ore per cargo.	2,779	2,784	2,762	2,755	2,768	2,826
Tons fuel, net.....	3,015	2,789	2,452	2,808	3,422	2,810
Fuel av. lbs. per mile..	217	232	221	204	228	203
Lubricants, av. cost per mile.....	1 9-100 cts.	1 15-100 cts	1 29-100 cts	99-100 cts.	1 1-100 cts.	1 17-100 cts
Total time handling cargoes and fuel.....	50 d. 10 h.	41 d. 3 h.	39 d. 16 h.	46 d. 12 h.	63 d. 22 h.	58 d. 5 h.
Lost time, repairs, dry dock, etc.....	5 days	.....	1 day	.....	.....	.....
Engineers' supplies and repairs, cost.....	\$128.16	\$77.43	\$127.78	\$77.29	\$187.90	\$89.40
Lost time, weather.....	2 d. 16 h.	1 d. 11 h.	1 d. 12 h.	14 h.	1 d. 3 h.	2 d.

PERFORMANCE OF MUTUAL TRANSPORTATION COMPANY'S STEAMERS
OF CLEVELAND, SEASON OF 1893.

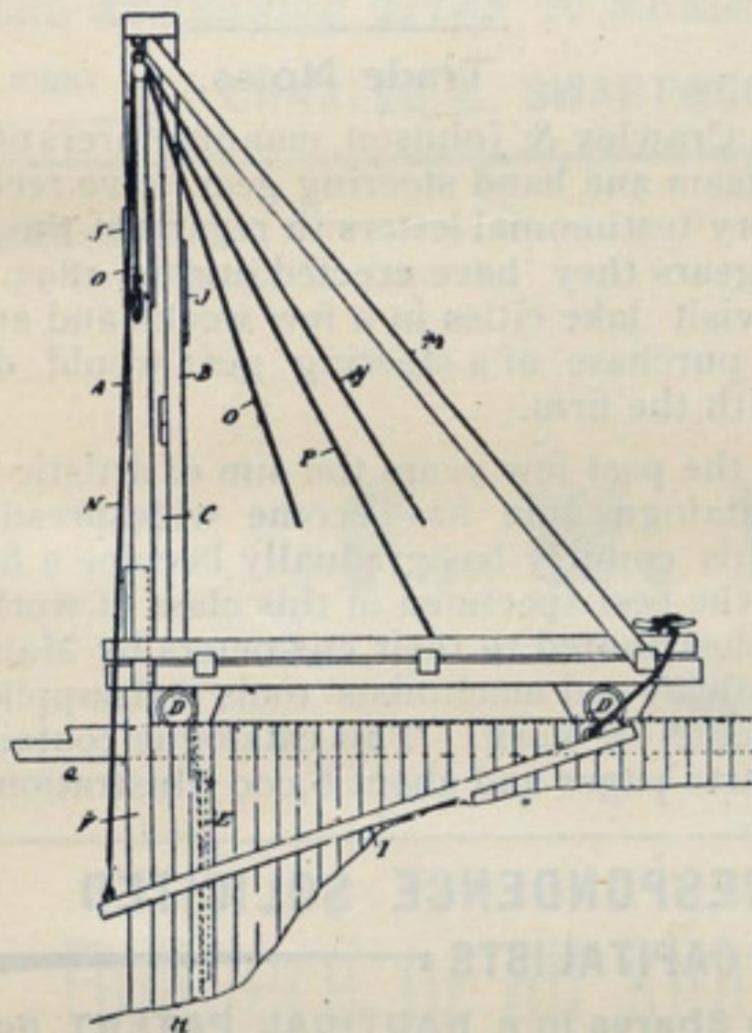
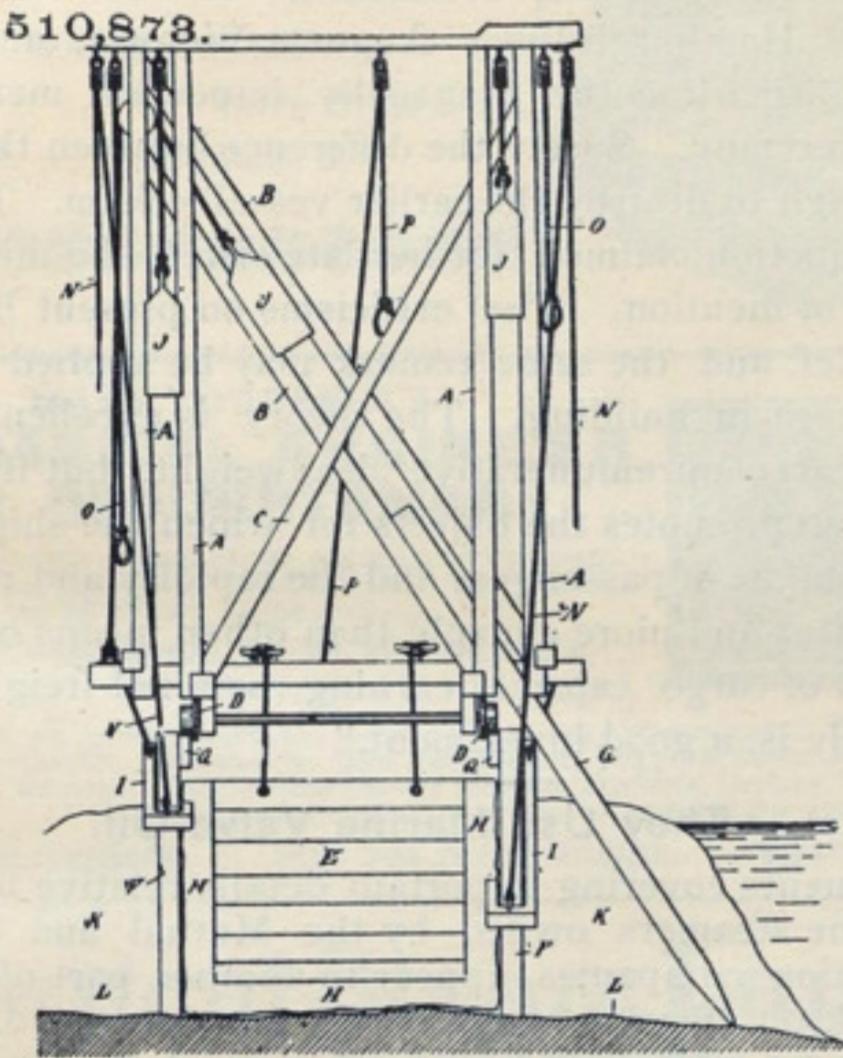
	Cambria.	Corsica.	Corona.
Number of trips.....	27	27	30
Hours run.....	2,743	2,768	3,021
Miles run.....	33,425	34,590	38,900
Miles run per hour.....	12.18	12.49	12.87
Ore carried, gross tons.....	69,631	73,071	79,753
Coal carried, net tons.....	2,610	.....	.....
Grain carried, gross tons.....	.....	2,196	.....
Ore carried, average tons per cargo...	2,486	2,706	2,658
Fuel, number of tons, net.....	3,438	3,632	3,996
Fuel, average pounds per mile.....	205	209	205
Lubricants, average cost per mile	78-100 cts.	83-100 cts.	98-100 cts.
Total time handling cargoes and fuel.....	55 d. 5 h.	56 d. 8 h.	50 d. 19 h.
Lost time, repairs, dry dock, etc.....	.....	4 days.	.....
Engineers' supplies and repairs, cost.....	\$100.18	\$125.08	\$60.78
Lost time, account of weather.....	5 d. 13 h.	3 d. 10 h.	16 hours.

Illustrated Patent Record.

SELECTED ABSTRACTS OF SPECIFICATIONS ACCOMPANYING PATENTS OF A MARINE NATURE—FROM LATEST PATENT OFFICE REPORTS.

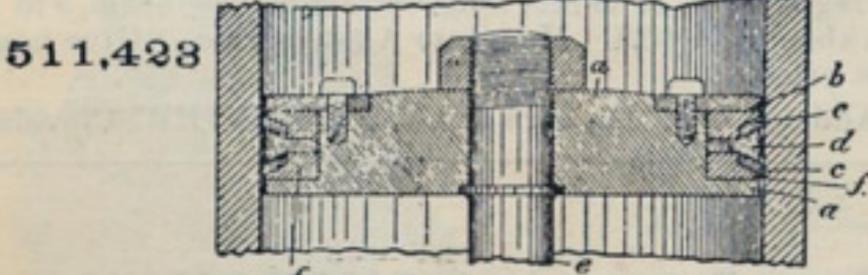
510,873. TRIPLE PILE DRIVER. William Baptist, New Orleans, La. Filed March 31, 1893. Serial No. 468,465. (No model.)

Claim: In a pile driver, the combination of the piles and means for driving them, with the door loosely hung between two of the piles, and the ends H secured to the door, and provided with padding, substantially as and



for the purpose set forth; also the vertical weight guides A, the weight guide B extending diagonally across the vertical guides, and means for operating the weights, combined with the piles, and the door hung below and between two of the said piles and provided with padding, substantially as and for the purpose set forth.

511,423. STEAM-PISTON PACKING. Samuel P. Hinkley, Portland, Me. Filed July 3, 1893. Serial No. 479,498. (No model.)



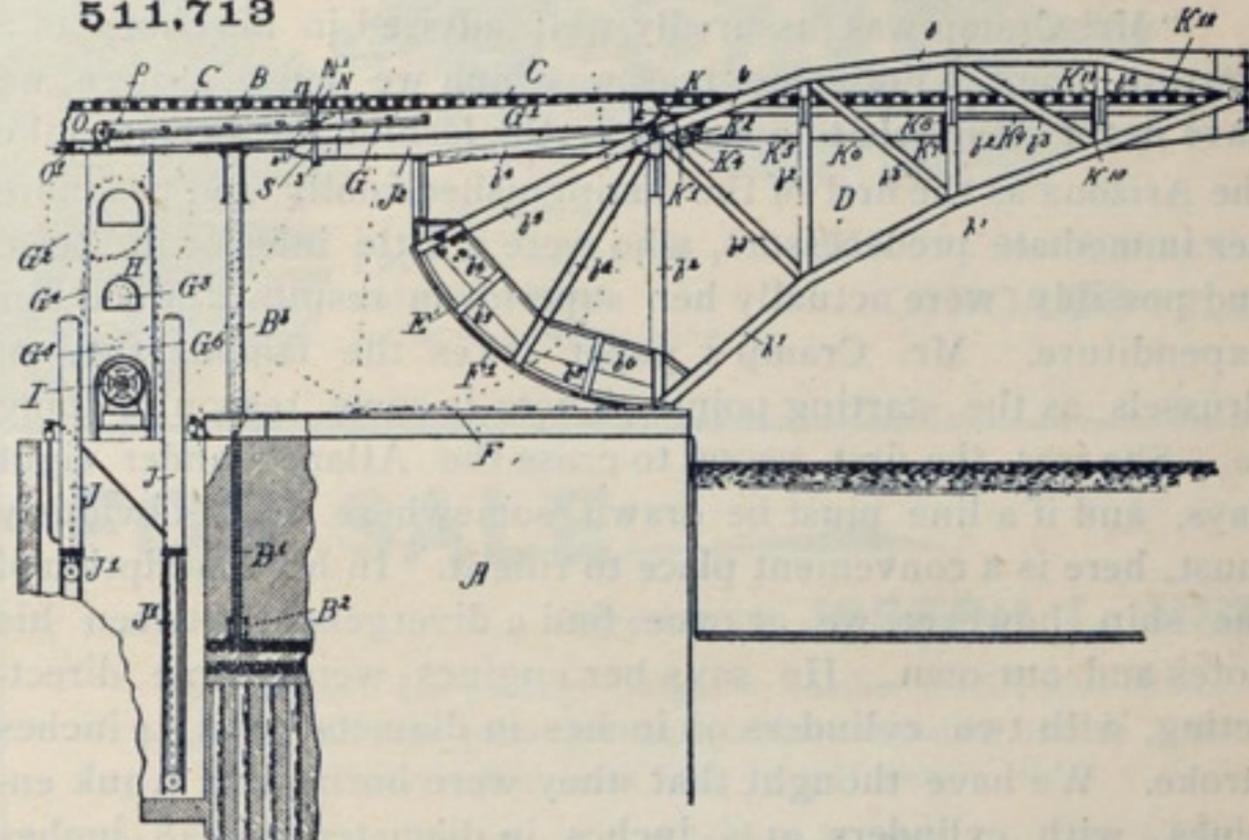
Claim: In a steam piston head, the combination of a junk ring with outwardly flaring sides and a packing ring having sides parallel or substantially parallel with said flaring sides, whereby said ring inclines outwardly toward the edges of the piston head, substantially as described.

511,713. LIFT-BRIDGE. William Scherzer, Chicago, Ill.; Albert H. Scherzer, administrator of said William Scherzer, deceased. Filed May 29, 1893. Serial No. 475,905. (No model.)

Among twenty-eight claims submitted in connection with this invention, and worded in various ways, are the following: First, a lift bridge having a

movable span provided with a curved part adapted to rest and roll upon a supporting surface, a locking mechanism located at the outer end of the span, an oscillating disk on the span having operative connection with said locking mechanism, a rack bar eccentrically connected with said disk, a gear wheel engaging said rack bar and an actuating mechanism operatively connected with the gear wheel. Second, a lift bridge consisting of two movable spans, each provided with a curved part adapted to rest and roll upon a supporting surface

511,713



Comment on Mr. Cramp's Paper.

Charles H. Cramp's paper on "The Evolution of the Atlantic Greyhound," read at the inaugural meeting of the Society of Naval Architects and Marine Engineers in New York a few weeks ago, is attracting considerable attention. Engineering of London says of it:

"Mr. Cramp was assuredly well advised in his choice of a starting point. For some reason, which we must confess we have never been able to appreciate, the fashion has been to take the Arizona as the first of the distinguished family, and to ignore her immediate predecessors, who were a little inferior in speed, and possibly were actually her superior in results attained for expenditure. Mr. Cramp's paper takes the famous City of Brussels as the starting point. There is some reason in doing so. She was the first vessel to cross the Atlantic under eight days, and if a line must be drawn somewhere, as it obviously must, here is a convenient place to rule it. In his description of the ship, however, we at once find a divergence between his notes and our own. He says her engines were simple direct-acting, with two cylinders 90 inches in diameter and 54 inches stroke. We have thought that they were horizontal trunk engines, with cylinders 91½ inches in diameter and 48 inches stroke. This discrepancy is not very important, but it serves to show how difficult it is to arrive at absolute accuracy concerning things not a quarter of a century old. Leaving her he mentions the Oceanic, Celtic, and Adriatic. The former he surely gives 100 tons too much. For her gross tonnage was 3,707, not 3,808 tons. The error in respect to the two later ships is more important. The length of the Adriatic should be 437 feet, not 417 feet, and the steam pressure carried was never as high as 80 pounds. These points should be emphasized, for to the great length of the early White Star boats is largely attributable the regularity and comfort which characterized them, whilst their economy in working with what nowadays would be called low-pressure steam should not be minimized. So far Mr. Cramp has been comparing vessels by their length between perpendiculars, but in speaking of the City of Berlin some other measurement is taken, for we should call her length 488 feet 6 inches, not 499 feet.

"In speaking of the Britannic and Germanic, the vessels which competed so successfully with the City of Berlin for the Atlantic record, justice is again inadvertently denied to the economy of the Belfast ships by putting their steam pressure and indicated horse-power too high. The most important point of difference between ourselves and Mr. Cramp's history is in regard to the competition of the flyers of 1881. We agreed that the Servia was 'out of the hunt' as regards the blue ribbon, but Mr. Cramp asserts that the City of Rome held it with a passage of 6 days 18 hours, and beat the Alaska by some 37 minutes. We know that the City of Rome was claimed as a record boat, but we do not think the claim was sustained. Whilst she was in Inman's hands she never got near the record, and her subsequent passages were measured in a provoking and confusing manner, some published times being reckoned from Roche's Point to Fire Island, and on other occasions the Fastnet was taken as the eastern end of the course. The America was surely worth a fuller notice than is given her, for she was a very remarkable ship, even if her career was not a financial success. Her rival, the Oregon, is credited with a steam pressure of 170 pounds. This would be a good pressure for triple expansion engines. The Oregon had only compound engines, and we think Mr. Cramp will find 100 pounds nearer her limit.

"Mr. Cramp then goes into interesting details regarding the triple expansion vessels built for the North German Lloyd Company at Fairfield, and gives a table of allowance for Southampton passages at various mean speeds to bring them into the parity of Queenstown. Here he says that at 19½ knots some

fourteen hours must be allowed for the extra distance to Southampton. In fourteen hours at that speed some 273 nautical miles would be run. This statement by the builder of future competitors with the present record holders is of great value, and should be pigeon holed for future reference when controversies on records and ports are to the fore.

"Curiously enough, whilst he gives full and accurate particulars of the Columbia, Normannia, and First Bismarck, he ignores the Hamburg line's Augusta Victoria, and speaks of the First Bismarck as the first really important merchant ship built in Germany. Surely the difference between the two ships is not enough to destroy the earlier vessel's claim. If unworthy of the distinction claimed for her late sister, she might at least be worthy of mention. The criticisms on present British practice are brief, and the same remark may be applied to those on future American building. The theory is excellent. No one wishes to carry unremunerative deadweight, but if it be found that to do so promotes the objects for which the ship was built, viz., the comfort of passengers and the rapidity and regularity of transit, better and more cheaply than other means could do, the diminution of cargo capacity earning nominal freights may be, and possibly is, a good investment."

They Use Marine Valve Oil.

Statements covering important details relative to the operation of nine steamers owned by the Mutual and Menominee transportation companies appear in another part of this issue. F. W. Jackson, marine agent of the Standard Oil Company, is pleased to see matters of this kind in print, as the steamers of both these lines use the oil in which he is interested.

Trade Notes.

Messrs. Crawley & Johnson, manufacturers of the Cincinnati automatic steam and hand steering gear, have received a number of satisfactory testimonial letters in regard to the performance of the several gears they have erected during 1893. Mr. Johnson expects to visit lake cities in a few weeks and anyone contemplating the purchase of a steering gear would do well to communicate with the firm.

Within the past few years the aim of artistic productions in the trade catalogue line has become widespread, and catalogue making in this country has gradually become a fine art. What is probably the best specimen of this class of work ever issued is now being distributed to their customers by Manning, Maxwell & Moore, railway and machinists' tools and supplies, 111 and 113 Liberty street, New York. This catalogue contains nearly 1,200 imperial quarto pages and about 6,000 illustrations.

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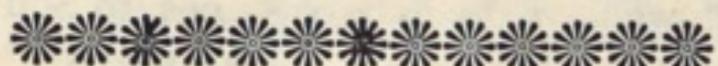
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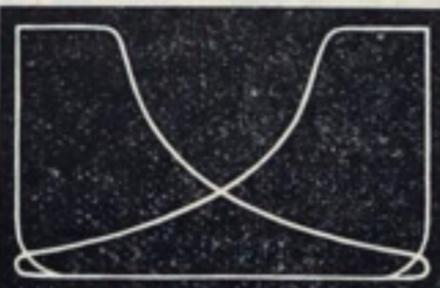
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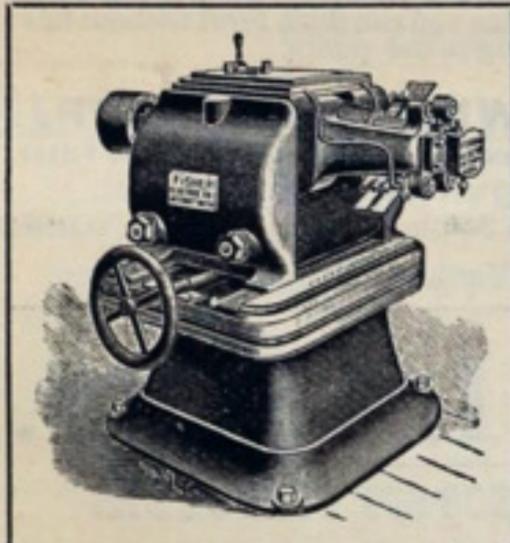
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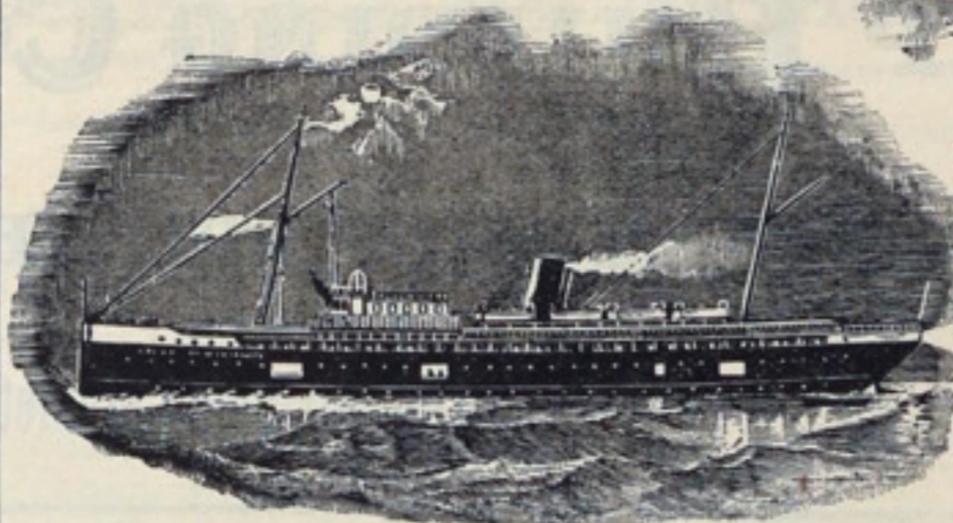


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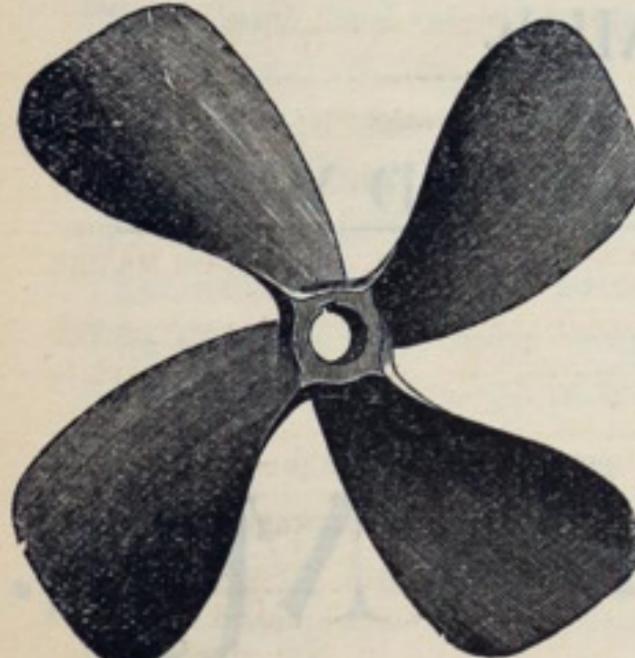
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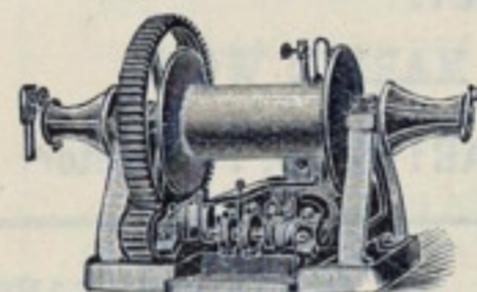
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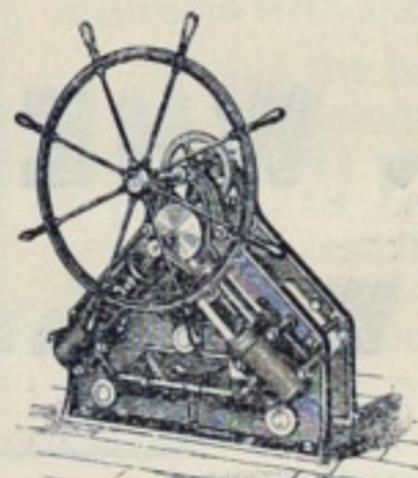
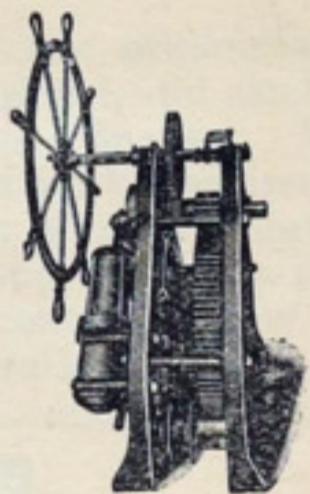
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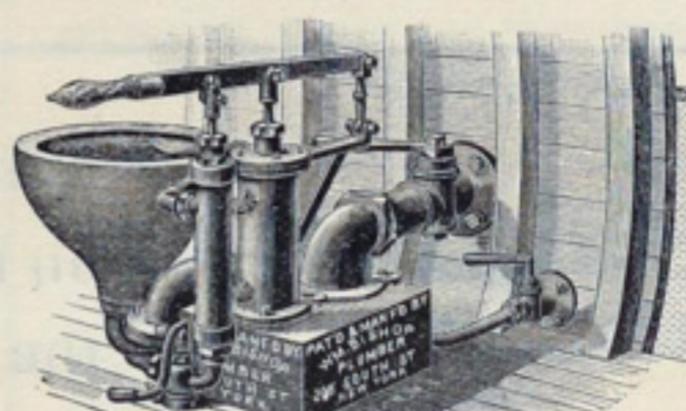
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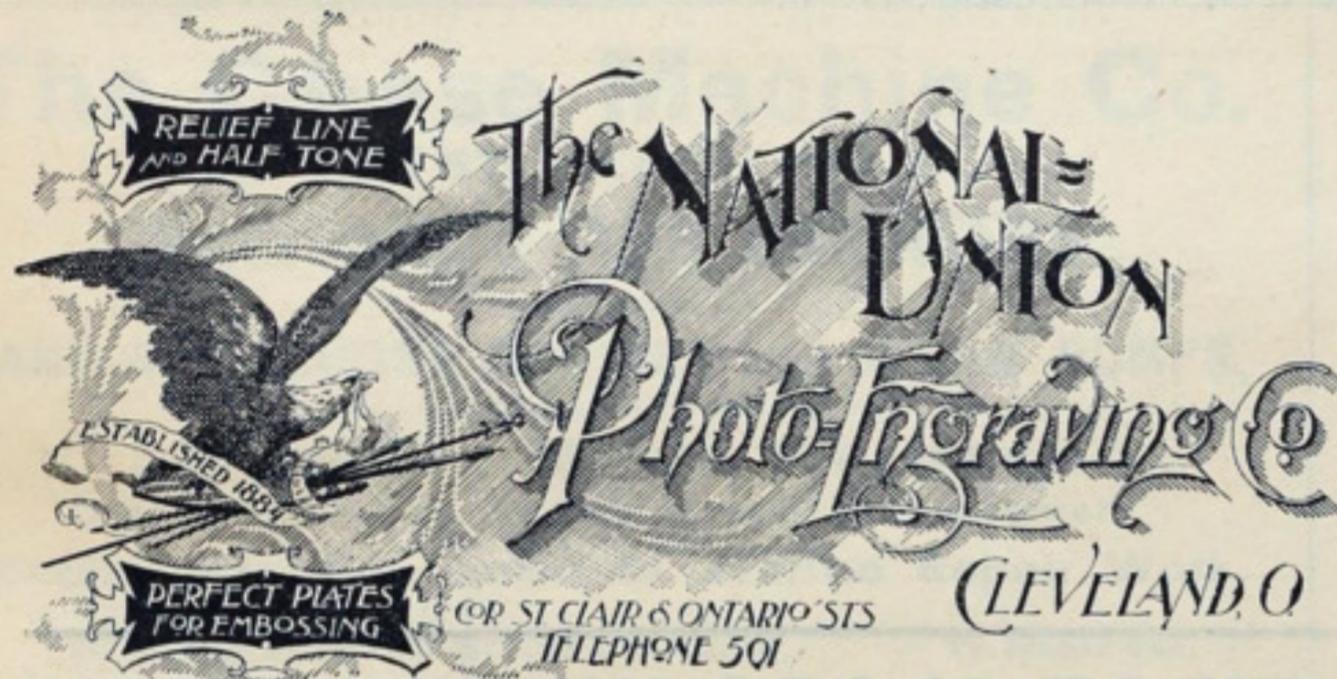
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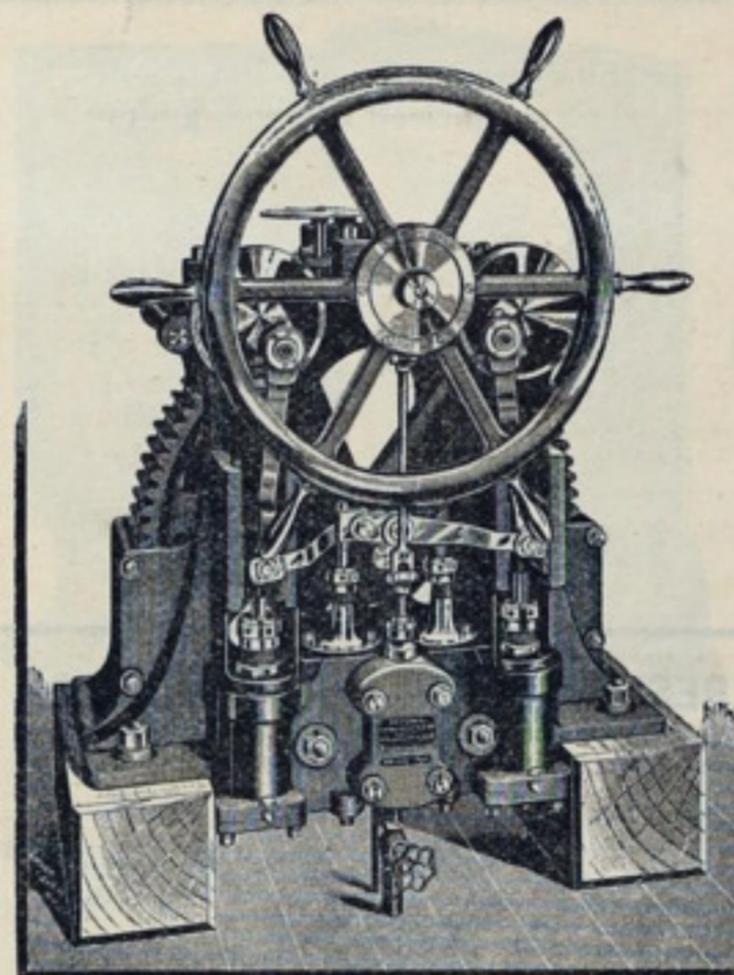
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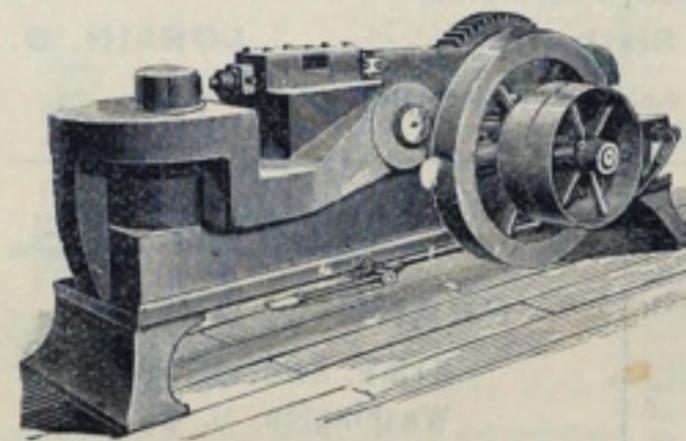
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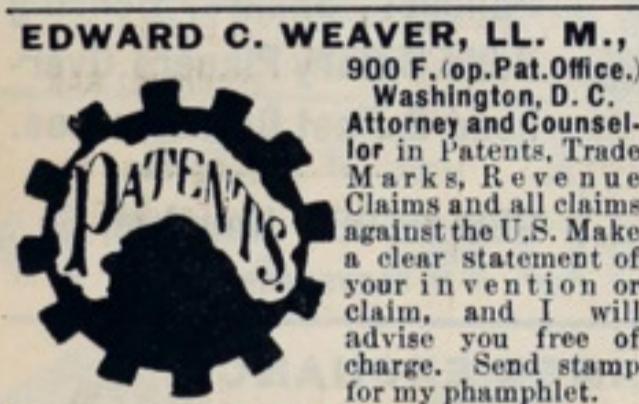
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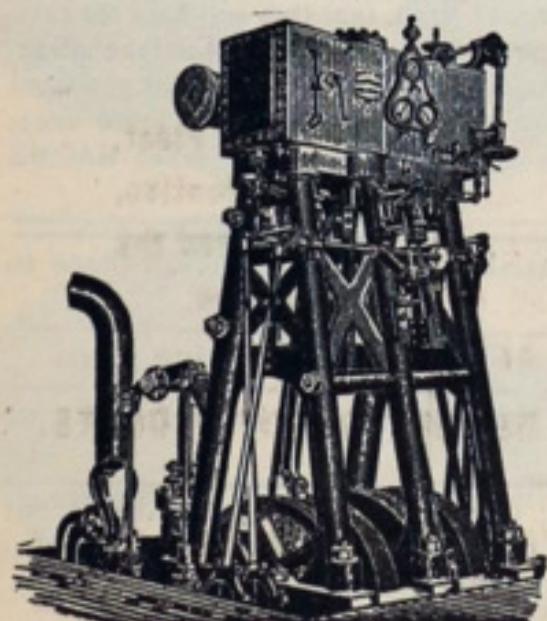
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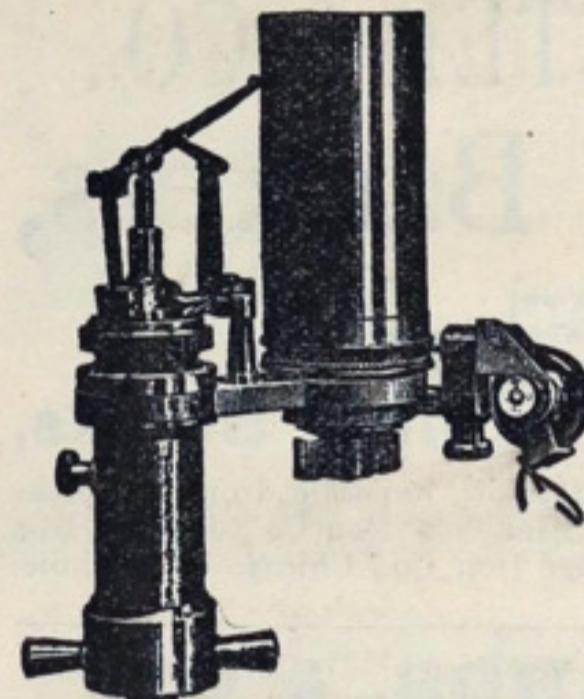
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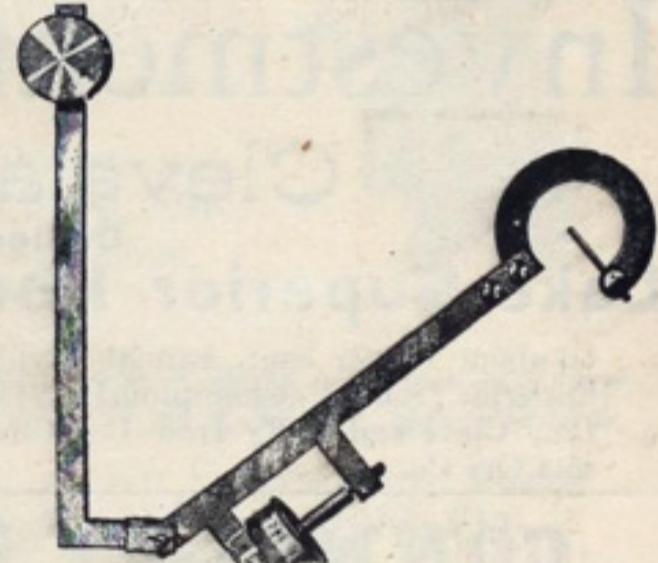


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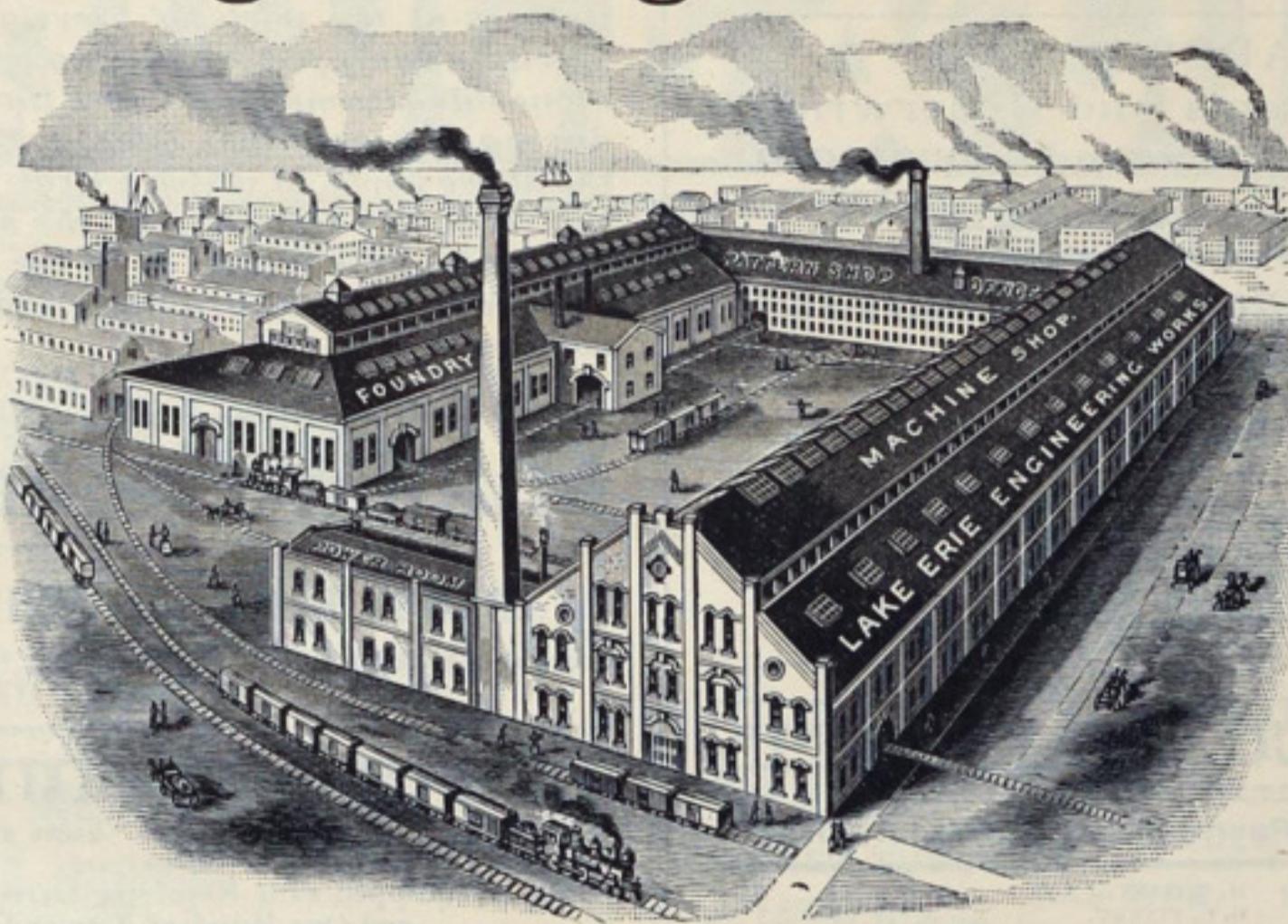
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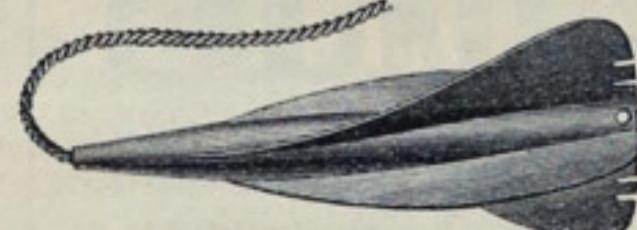
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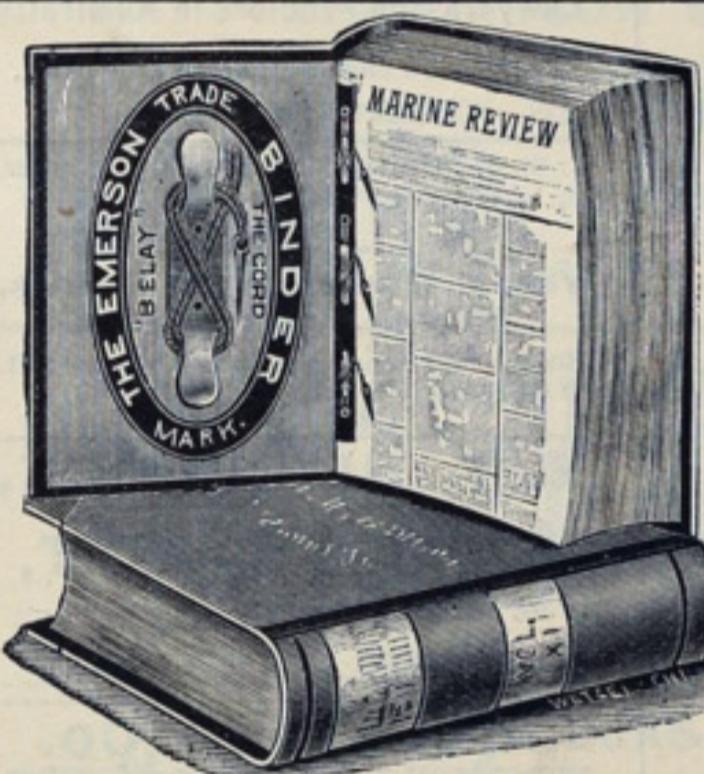
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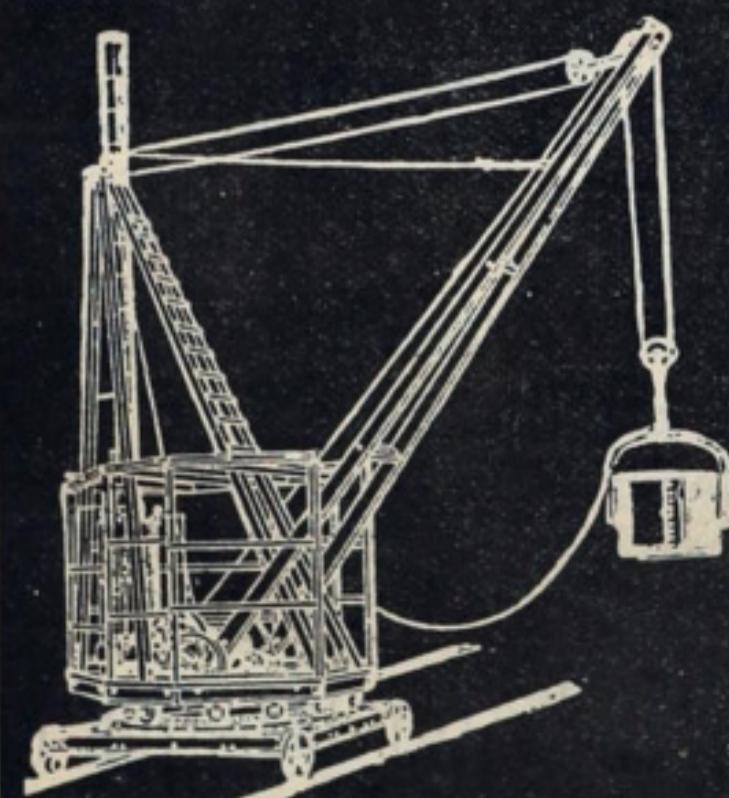
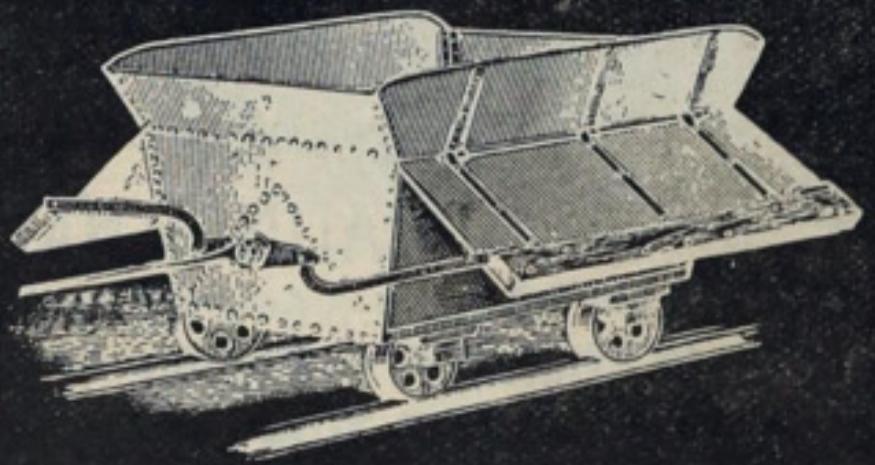
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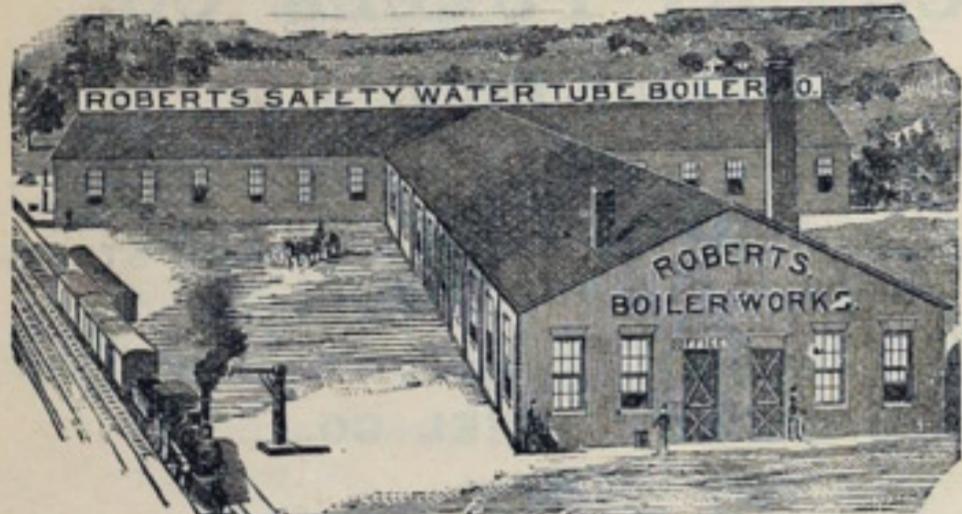
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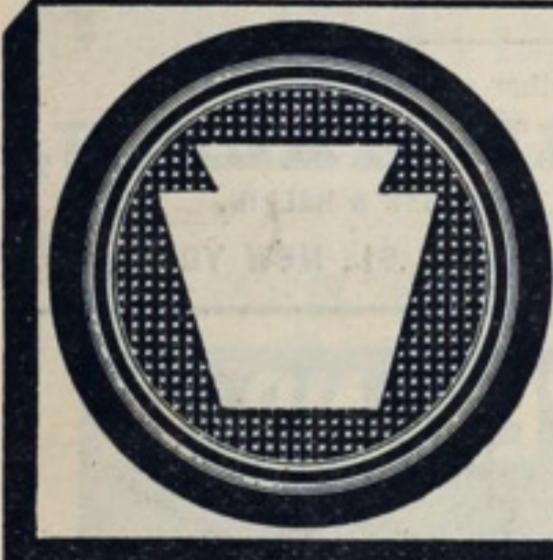
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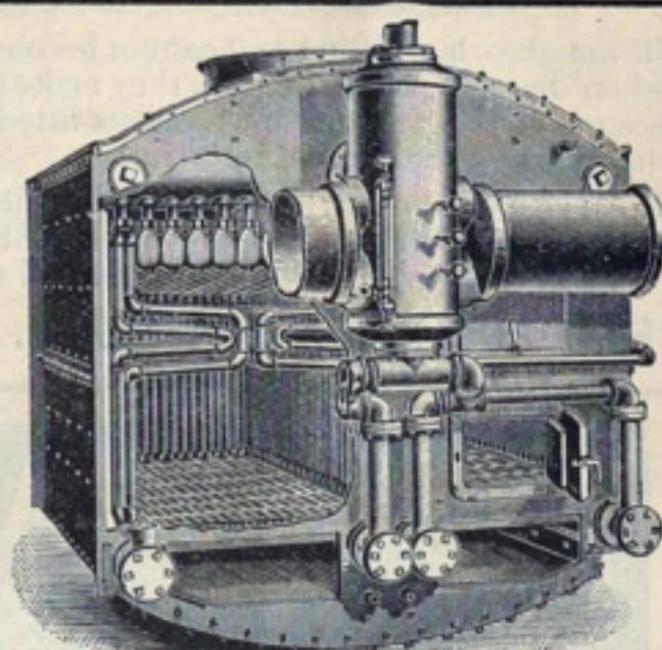
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